

138007

RECORD OF DECISION

**SUFFOLK CITY LANDFILL
SUFFOLK, VIRGINIA**

**Prepared by
VIRGINIA DEPARTMENT OF WASTE MANAGEMENT
and
U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION III**

September 1992

AR301398

TABLE OF CONTENTS

	Page
PART I - DECLARATION	1
I. SITE NAME AND LOCATION	2
II. STATEMENT OF BASIS AND PURPOSE	2
III. ASSESSMENT OF THE SITE	2
IV. DESCRIPTION OF THE SELECTED RESPONSE ACTION	2
V. DECLARATION STATEMENT	2
PART II - DECISION SUMMARY	4
I. SITE NAME AND LOCATION	5
II. SITE HISTORY AND ENFORCEMENT ACTIVITIES	5
III. HIGHLIGHTS OF COMMUNITY PARTICIPATION	9
IV. SCOPE AND ROLE OF RESPONSE ACTION	10
V. SUMMARY OF SITE CHARACTERISTICS	10
VI. SUMMARY OF SITE RISKS	16
VII. DESCRIPTION OF THE SELECTED RESPONSE ACTION	25
VIII. BASIS FOR THE NO-ACTION ALTERNATIVE	25
IX. DOCUMENTATION OF SIGNIFICANT CHANGES	26
PART III - RESPONSIVENESS SUMMARY	32
I. OVERVIEW	33
II. BACKGROUND OF COMMUNITY INVOLVEMENT	34
III. SUMMARY OF PUBLIC COMMENT AND RESPONSES	36
IV. SUMMARY	41

LIST OF FIGURES

Page

Figure 1 - Site Location	7
Figure 2 - Local Features Surrounding the Hosier Road Landfill	8
Figure 3 - Sampling Locations and July 1992 Groundwater Elevations	11
Figure 4 - Hydrogeologic Cross-Sections of the Hosier Road Landfill	14

LIST OF TABLES

Table 1 - List of Water Quality Standards for the Hosier Road Landfill	17
Table 2 - Contaminants Detected in Groundwater Samples at the Hosier Road Landfill	19
Table 3 - Contaminants Detected in Surface Water Samples at the Hosier Road Landfill	20
Table 4 - Contaminants Detected in Sediment Samples at the Hosier Road Landfill	21
Table 5 - Estimation of Carcinogenic Risks Associated with Ingestion of Groundwater Contaminated with Metals (Dissolved) at the Hosier Road Landfill	23
Table 6 - Estimation of Chronic Hazards Associated with Ingestion of Groundwater Contaminated with Metals (Dissolved) at the Hosier Road Landfill	24
Table 7 - Estimation of Carcinogenic Risks Associated with Ingestion of Contaminated Surface Water near the Hosier Road Landfill .	27
Table 8 - Estimation of Chronic Hazards Associated with Ingestion of Contaminated Surface Water near the Hosier Road Landfill .	28
Table 9 - Estimation of Carcinogenic Risks Associated with Ingestion of Contaminated Fish near the Hosier Road Landfill	29

LIST OF TABLE (Continued)

Page

Table 10 - Estimation of Chronic Hazards Associated with Ingestion of Contaminated Fish near the Hosier Road Landfill	30
Table 11 - Estimation of Carcinogenic Risks Associated with Ingestion of Contaminated Sediments near the Hosier Road Landfill	31
Table 12 - Estimation of Chronic Hazards Associated with Ingestion of Contaminated Sediments near the Hosier Road Landfill	32

APPENDICES

Appendix A: Letters Received During Comment Period	
Appendix B: Glossary of Superfund Terms	
Appendix C: Index of Documents contained in the Administrative File	

PART I
DECLARATION

- 1 -

AR301402

DECLARATION

I. SITE NAME AND LOCATION

Suffolk City Landfill (Hosier Road Landfill)
Suffolk, Virginia

II. STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) presents the response action selected for the Suffolk City Landfill, located in Suffolk, Virginia (Site). The Environmental Protection Agency (EPA), in consultation with the Commonwealth of Virginia Department of Waste Management (VDWM), has selected a response action for the Site. The response action was selected in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The decision contained herein is based on information included in the Administrative Record File for this Site. An index of documents for the Administrative Record File is included in Appendix C.

VDWM concurs with the selected response action.

III. ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances at the Site have not presented, and do not currently present, an imminent and substantial endangerment to public health, welfare, or the environment.

IV. DESCRIPTION OF THE SELECTED RESPONSE ACTION

The selected response action consists of no remedial action. Groundwater monitoring will be performed to provide continued assurance that no unacceptable risks to human health or the environment occur.

V. DECLARATION STATEMENT

EPA, in consultation with VDWM, has determined that no remedial action is necessary at this Site to ensure protection of human health and the environment. Therefore, the Site now qualifies for inclusion in the "site awaiting deletion" subcategory of the Construction Completion category of the National Priorities List (NPL). Because hazardous substances remain at the Site,

however, a review will be conducted within five (5) years after this Record of Decision (ROD) is signed, to assure continued protection of human health and the environment.

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY


Edwin B. Erickson
Regional Administrator, Region III

9/30/92
Date

PART II
DECISION SUMMARY

- 4 -

AR301405

I. SITE NAME AND LOCATION

The Suffolk City Landfill Site, also referred to as the Hosier Road Landfill (Landfill or "Site"), is a 67-acre parcel situated east of Hosier Road (Virginia Route 604) in the City of Suffolk, Virginia (Figure 1).

To the north of the Site is a 37-acre borrow area from which current cover material for the Landfill was obtained. Bordering the Site to the east is undisturbed upper reaches of Pocasin Swamp, and an escarpment that defines the western boundary of the Great Dismal Swamp. To the southeast of the Site lies a privately-owned road. Properties in the vicinity of the local area of the Site include the Suffolk airport, a currently-closed wood preserver, two plant nurseries, and parts of forest and farm lands. Two unnamed streams (unnamed streams N and E) are located north and east of the Site. These streams meet in an area adjacent to and northeast of the Site before emptying into the Pocasin Swamp, located east of the Site (Figure 2).

The City of Suffolk (City) is primarily an agricultural community. Based on the 1990 Census, the population of the City was 52,141. There are about 40 to 45 residences located within one mile of the Site. Most of these residences are in areas south of the Site, where groundwater is the primary source of drinking water.

II. SITE HISTORY AND ENFORCEMENT ACTIVITIES

The City of Suffolk operated the Landfill from approximately 1967 to January 1985 as a sanitary landfill in accordance with Permit No. 310 issued by the Virginia Department of Health (VDOH). The Landfill received municipal solid waste primarily from the City and, before 1974, Nansemond County. The City leased the Site from 1967 until 1983, when it purchased the Site from Elon College and Suffolk Bible College.

The Landfill is unlined. Municipal wastes were disposed of in the Landfill by the trench-and-fill method followed by filling and compaction by lifts above grade. Compacted waste was then covered with approximately two feet of clean soil from a borrow area onsite. This disposal method resulted in surface elevation of 20 to 30 feet above the undisturbed ground level.

The permit for the operation of the Landfill was most recently reissued in June 1983. The reissued permit required the City to close the Landfill when the regional landfill became operational, and implement the closure plan, which had been submitted to VDOH. In preparation for the implementation of the closure plan, the City discovered documentation indicating that several tons of debris that contained pesticides had been disposed of in the Landfill in

1970. The disposed pesticides, which were damaged by a fire at the Dixie Guano Company, included Disulfoton, Cu7 Sulfur, 7 Sulfur, Thimet, and Cyanox. On June 3, 1970, representatives of the Tri-County Health District, the former Nansemond County (now City of Suffolk), State Water Control Board, the Virginia Department of Agriculture, and the Industrial Hygiene Department met to determine a disposal method for the remaining pesticides (approximately 20 tons). At this meeting, an agreement was reached that disposal of the remaining pesticides would occur in a lime-lined trench of 30 feet long x 30 feet wide x 3 feet deep, and that the pesticides would be covered with lime and two feet of soil. The lime would promote hydrolytic processes that break down the pesticides. According to a June 5, 1970 Virginia Department of Health memo, the pesticides were treated with lime and covered with two feet of soil, as recommended in the June 3, 1970 meeting, in two trenches of approximately 120 feet long x 25 feet wide x 3 feet deep.

Following the City's notification of the pesticide disposal at the Site, EPA completed a Preliminary Assessment in April 1985 and a Site Inspection in July 1986. As a result of these efforts and a Hazard Ranking System (HRS) scoring of the Site, EPA proposed to include the Site on the NPL in June 1988 and finalized the inclusion in February 1990.

In early 1989, the City placed an impermeable tarpaulin plastic liner over the pesticide disposal area to prevent surface water infiltration through the soil cover. The liner covers an area of approximately 100 feet long x 36 feet wide. A warning sign is currently posted next to the pesticide disposal area.

In June 1989, the City and VDWM entered into an Administrative Order on Consent (AOC) which required the City to conduct a remedial investigation/feasibility study (RI/FS) to determine the nature and extent of contamination and to develop and evaluate cleanup alternatives. The AOC additionally required that the City implement a temporary leachate collection system (TLCS). The TLCS has been implemented and is currently being operated by the City Department of Public Works. The collected leachate has been periodically sampled and transported to Hampton Roads Sanitation District (HRSD) sewage treatment plant for treatment in accordance with a permit issued by (HRSD).

The findings of the Remedial Investigation (RI) are discussed in Section V (Summary of Site Characteristics) and Section VI (Summary of Site Risks) and provide the basis for the determination that no remedial action is required at the Site. Following issuance of this ROD, the City intends to pursue final closure of the Landfill in accordance with current State requirements.

Figure 1 - Site Location

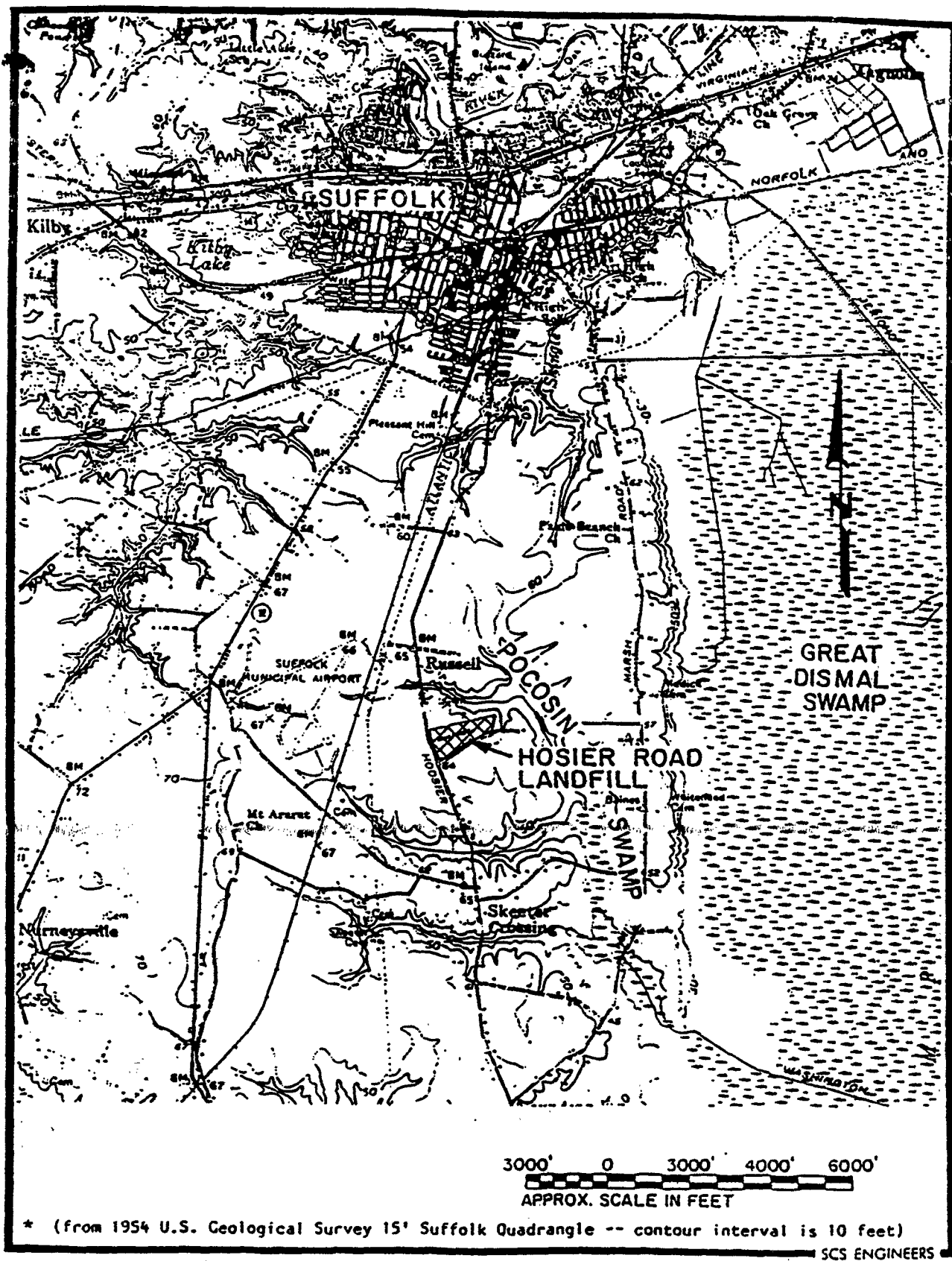


Figure 2 - Local Features Surrounding the Hosier Road Landfill



III. HIGHLIGHTS OF COMMUNITY PARTICIPATION

The area residents' primary issues of concern expressed in community interviews conducted by VDWM in 1989 and 1991 included the potential for contamination of groundwater and surface water and property values. The potential for pollution of area groundwater caused by leachate or pesticides escaping from the Landfill into wells or nearby waters was raised. Residents within a three mile radius of the Site rely primarily on wells for their drinking water, and thus were concerned about how the Landfill might be affecting the groundwater. The possibility of surface water runoff affecting the wildlife and flora of the Pocosin and Great Dismal Swamp was also of concern.

The Community Relations Plan was written in October 1989 and updated by VDWM in 1991. Throughout the RI/FS, updates on Site activities were provided on a quarterly basis and VDWM responded to questions from residents and officials. Two community workshops were held prior to the onset of the RI/FS, one on January 29, 1991, and one on March 17, 1991. The first workshop, held at City Hall, was sparsely attended by two members of the local press and three local residents. The primary concern at this workshop was the fiscal outlay expected for the investigation and cleanup. The March 17, 1991 workshop was scheduled at the request of several interested Hosier Road area residents who were unable to attend the January workshop. Approximately 40 residents attended the March meeting. Residents expressed interest in learning more about Technical Assistance Grants (TAGS), and met again with a VDWM representative on May 16, 1991 to obtain a TAG application binder and ask additional questions. Approximately 30 residents attended the May TAG meeting. An additional workshop was held by VDWM on April 9, 1992 to discuss the investigation findings, and update citizens on the status of the Remedial Investigation.

In accordance with CERCLA §§ 113(k), 117(a), and 121(f), the Proposed Plan was made available to the Site community. Public notices were placed in the August 22, 1992 edition of the Suffolk News Herald and the August 23, 1992 edition of the Virginian-Pilot and Ledger Star. Furthermore, a notice of the availability of the Proposed Plan and of the public comment period and the public meeting was announced on the municipal cable channel. Additionally, citizen advisories were sent to members of the mailing list. The public comment period began on August 23, 1992 and continued through September 22, 1992.

At the September 3, 1992 Proposed Plan public meeting, which was held at Mt. Ararat Church, representatives from VDWM presented an overview of the Superfund process, summarized the sampling results and Proposed Plan, and answered questions from community members. EPA officials were also present to address questions and concerns raised. A formal response to questions and comments received during the comment period can be found in the

Responsiveness Summary, located in Part III of this document.

All documents used in selecting a response action for the Site can be found in the Administrative Record File located in the Morgan Memorial Library, 443 West Washington Street, Suffolk, Virginia.

IV. SCOPE AND ROLE OF RESPONSE ACTION

The RI report documents the findings associated with the Site. Based on the RI findings, EPA, in consultation with the State, has determined that the Site does not pose an unacceptable risk to human health and the environment. Therefore, a feasibility study (FS) to evaluate cleanup alternatives was not required. EPA, in consultation with VDWM, has determined that no remedial action is required at the Site. Groundwater monitoring will be performed to provide continued assurance that the Site does not pose an unacceptable risk to human health and the environment.

V. SUMMARY OF SITE CHARACTERISTICS

This section discusses Site hydrological and geological characteristics, summarizes sampling results performed during the RI, identifies areas of concern, and discusses major fate and transport phenomena of the contaminants found at the Site. Figure 3 depicts the locations of major sampling activities in the RI.

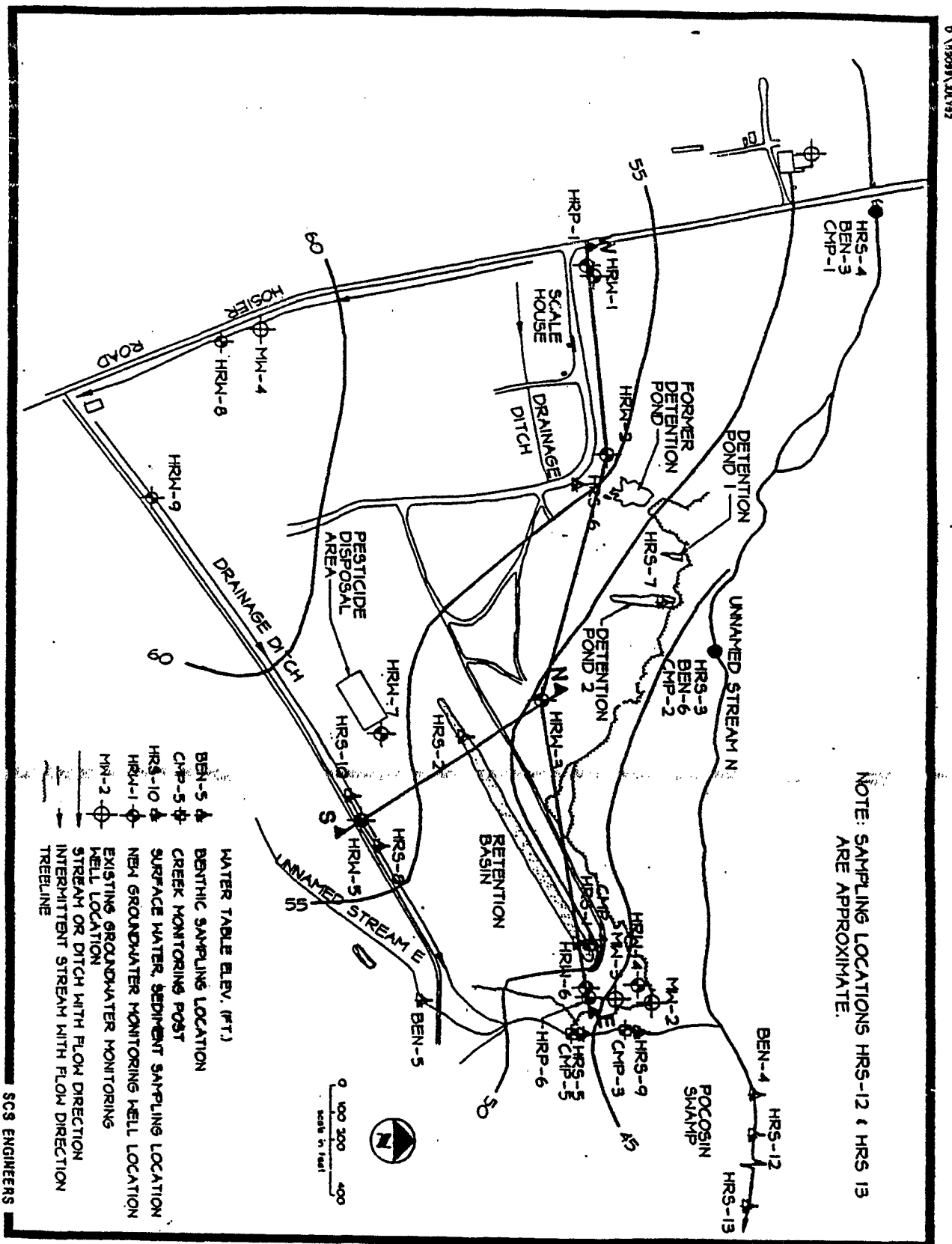
1. Site Characteristics

a. Regional Characteristics.

The topography in areas surrounding the Site is relatively flat. This is a typical condition of the Coastal Plain physiographic province in southeastern Virginia. Approximately 1.5 miles east of the Site is the Suffolk Scarp extending north-south. The scarp was formed about 140,000 years ago during the Pleistocene epoch when sea level was about 45 feet higher than it is today. Regional surface water drainage is toward the Great Dismal Swamp. Within the swamp, drainage is toward Lake Drummond, which is located near the center of the swamp and has an area of approximately 60 square miles. More locally, surface water drains from the Site into the Pocosin Swamp, which widens to the southeast. The Pocosin Swamp drains into the Washington Ditch of the Great Dismal Swamp (Figure 2).

The geology around the City of Suffolk is principally related to the great thickness of largely unconsolidated coastal plain sediments in the region. The sediments generally dip and thicken to the east. Beneath the Site, the coastal plain sediments, which

Figure 3 - Sampling Locations and July 1992 Groundwater Elevations



range in age from Holocene (recent) to early Cretaceous, attain a thickness of approximately 1800 feet above basement meta-sedimentary and meta-igneous rocks.

The Charles City Formation of Pleistocene age is the uppermost formation at the Hosier Road Landfill site. The formation is composed of sand, silt, and clay; grain size generally becomes finer toward the surface. The Pleistocene formations are bounded by unconformities and were deposited in fluvial-estuarine, bay, barrier, and near-shore marine environments. The Pleistocene formations contain various sediments of different characteristics. The Pleistocene formations generally have an upward-fining stratigraphy with localized coarser valley fill found at the base of each sequence.

The Yorktown Formation may be characterized as a blue-gray and green-gray sand interbedded with a sandy and silty blue-gray clay. Generally, it contains abundant marine fossil shells and locally contains glauconite and phosphate minerals.

Structural geology has played a minor role, compared to stratigraphy, in shaping the geology of the region since Pliocene time.

b. Local Characteristics.

Hosier Road Landfill is located within the Dismal Swamp basin and drains eastward to a small controlled outlet of the Dismal Swamp Canal. Drainage within the Dismal Swamp basin occurs with flatter, and longer-lasting flood flow peaks as compared to other major basins in Virginia.

The Site is bounded on the north by an eastward flowing perennial stream (unnamed stream N) which empties into the Poccosin Swamp. A smaller intermittent stream (unnamed stream E) joins unnamed stream N at the northeast end of the Landfill. Located approximately 3/4 mile south of the Landfill, another unnamed perennial tributary flows to the Poccosin Swamp. The Poccosin Swamp itself discharges into the Washington Ditch of the Great Dismal Swamp, which is located one mile southeast of the junction of the two tributaries.

Four surface water bodies are currently located on the Site. The sizes and locations of these water bodies can be seen on the Site map presented in Figure 3. The Retention Basin is fed by groundwater and has a fairly constant surface area. The former detention pond and Detention Ponds 1 and 2 are fed by surface runoff. During the summer, their surface areas and volumes decrease substantially. By mid-summer, the former detention pond and Detention Pond 1 are well vegetated and there is generally no visible water.

Several aquifers exist beneath the Site. The uppermost unconfined aquifer (Columbia aquifer) is underlain by several confined aquifers separated by intervening confining beds as shown in Figure 4. The uppermost aquifers, the Columbia and Yorktown-Eastover, and the intervening Yorktown confining unit, represent the groundwater units of primary concern at the Site. The deeper aquifers (The Lower Potomac) are isolated by clay confining units that essentially restrict the vertical movement of constituents. The Columbia aquifer is the most susceptible to contamination from the vertical migration of hazardous constituents and has a thickness of approximately 30 feet. The Columbia aquifer consists of interbedded gravel, sand, silt, and clay. The hydraulic conductivities of this upper aquifer vary from 0.59 feet per day to 4.14 feet per day across the Site, and the average value is 1.44 feet per day. The hydraulic conductivities were derived from slug test data of wells HRW-1 to HRW-6. Groundwater underneath and in the vicinity of the Site is present at depths ranging from 0 feet to 15 feet below the existing topography, flows northeastward, and discharges to the nearby streams.

2. Summary of the RI Sampling Results and Areas of Concern

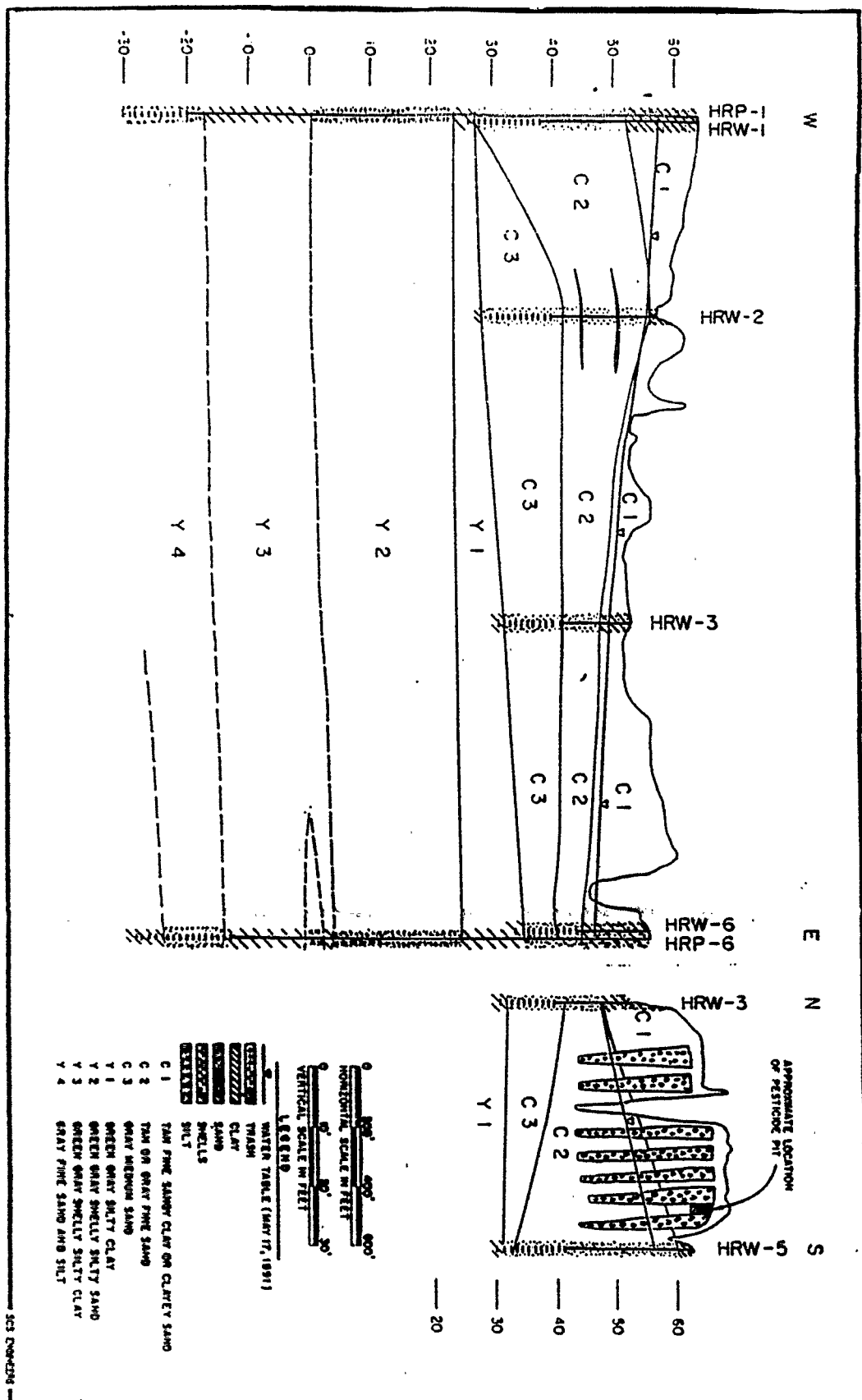
Surface water, sediment, and groundwater samples taken at locations at and around the Site during the RI (Figure 3) were analyzed for target pesticides, volatile compounds, semivolatile compounds, and metals.

Although pesticides were the focus of the remedial investigation, no pesticides were detected in any surface water, sediment, or groundwater samples, including samples taken from a groundwater monitoring well located immediately downgradient of the pesticide disposal area (HRW-7). In addition, no organic compounds were detected at levels that presented an unacceptable risk to human health.

No metal contamination was detected above levels of concern in seven of the nine monitoring wells. Slightly elevated levels of arsenic were detected in two wells (HRW-3 and HRW-6) in the northern section of the Landfill. Arsenic concentrations in filtered samples collected from these wells were 71.9 and 55.7 ug/l, respectively, slightly above the Maximum Contaminant Level (MCL) of 50 ug/l established under the Safe Drinking Water Act.

In the second sampling round, which was conducted in October 1991, the level of chromium detected in an unfiltered sample from one monitoring well (HWR-3) was 190 ug/l, exceeding the MCL of 100 ug/l. However, chromium was not detected in the filtered sample taken from this well for the same sampling event. Chromium levels in samples collected in the first sampling round (May 1991) from this well were also well below the MCL (23.6 ug/l in the unfiltered sample and below the detection limit in the filtered sample).

Figure 4 - Hydrogeologic Cross-Sections of the Hosier Road Landfill



Surface water sampling in unnamed streams N and E showed arsenic and chromium levels well below the Virginia standards for the protection of aquatic life. Also, the levels of these compounds in the stream sediments are below the average levels in soils of the eastern United States.

In addition, sampling of benthic community in a nearby stream was conducted to provide further information for the determination whether the Site has impacted the surrounding areas. The results of the benthic sampling indicated low species diversity of benthic organisms in a sample taken in the area immediately downgradient of the Landfill near the confluence of the unnamed streams N and E. However, subsequent surface water/sediment sampling at a nearby location in this stream revealed the absence of contamination, indicating the current Site condition was not likely the cause for the low benthic species diversity.

An animal survey in areas around the Site was also conducted. This study consisted of a comparison of animal species including mammals, birds, reptiles, amphibians, and fish species in areas around the Site to determine whether the Site has potentially impacted the local animal community. The results showed that animal species in different areas around the Site are similarly diverse except at the benthic location from unnamed stream N in an area northeast of the Site.

3. Fate and Transport Characteristics

Under the environmental conditions existing at the Site, it is likely that the pesticides disposed at the Site in 1970 have decomposed. Prior to burial, any pesticides exposed to sun light would likely decompose rapidly through photolysis. As temperature and Ph increase, the rate of hydrolysis of the pesticides increases. At pH 8 and 20°C, a conservatively assumed condition for the lime-containing pesticide pit, alkaline hydrolysis could degrade 99.99% of the pesticides in 47 days to 12 years. The reason for this wide range of degradation times is primarily the variation in the rates of alkaline hydrolysis associated with different pesticides disposed of at the Site. In addition to photolysis and hydrolysis, biodegradation also breaks down the pesticides quickly. For example, the biodegradation half-life for Disulfoton and Thimet are 2.4 days and 3 days respectively. Therefore, it is highly possible that the pesticides have been significantly degraded by photolysis, alkaline hydrolysis, and biodegradation processes since 1970, when they were disposed of at the Site.

Metals, including arsenic and chromium, are persistent in the environment. But metals tend to be adsorbed and remain adsorbed to the soil in the subsurface system. As a result, metals are relatively immobile in soil and groundwater. This property is evident from the RI sampling results. Chromium and arsenic appear

to be present at levels of concern in areas of the shallow aquifer that are immediately downgradient of the Site (i.e., around HRW-3 and HRW-6). Although most groundwater in the shallow aquifer discharges into unnamed streams N and E, no arsenic or chromium contamination has been detected by surface water/sediment sampling. In addition, levels of arsenic or chromium in monitoring well HRW-4, which is located immediately downgradient of monitoring well HRW-6, were well below the corresponding MCLs, indicating that the groundwater contamination was only localized in areas immediately downgradient from the Site.

VI. SUMMARY OF SITE RISKS

A human health risk assessment was conducted in accordance with EPA risk assessment guidance for Superfund. The human health risk assessment includes four major steps: identification of chemicals of concern, exposure assessment, toxicity assessment, and risk characterization.

Chemicals of Concern - Hazardous substances that were present at levels exceeding chemical-specific applicable or relevant and appropriate requirements (ARARs) or area background (upgradient) levels were identified as chemicals of concern (Table 1). Since dissolved metals are expected to be more mobile than total metals, the identification of chemicals of concern in groundwater was based on results of dissolved metal sampling.

Exposure Assessment - Major human potential exposure pathways identified included groundwater pathways, soil and sediment pathways, and surface water pathways. Other contaminant exposure pathways were also considered in the risk assessment, but were found to be insignificant pathways due to the unlikelihood of the exposure scenarios, or insignificant exposure concentrations.

- o **Groundwater Pathway** - The major exposure to groundwater contamination is through drinking contaminated groundwater. Shallow wells located downgradient of the Site would present the most risk. As contaminated groundwater in the shallow aquifer moves laterally through the soil or vertically through the underlying confining layer, certain contaminants, especially metals, would likely be adsorbed or attenuated, thereby reducing the risks with increasing distance downgradient from the Site. This is the primary potential route of exposure to contamination at the Site.

Table 1 - List of Water Quality Standards for the Hosier Road Landfill

Contaminants	Maximum Observed Concentration (ug/l)**	Average Observed Concentration (ug/l)**	SWCB Ground Water Standard for Aquifers (ug/l)	Maximum Contaminant Levels (MCLs) (ug/l)	Maximum Contaminant Level Goals (Guidance)	SWCB Surface Water Standard for Public Intake (ug/l)	SWCB Fresh Water Criteria to Protect Aquatic Life (ug/l) Chronic	Federal Fresh Water Criteria to Protect Aquatic Life (ug/l) Acute	Federal Fresh Water Criteria to Protect Aquatic Life (ug/l) Chronic
GROUND WATER INORGANICS									
Aluminum	206	82.1	--	--	--	--	--	--	--
Arsenic	71.9	19.3	50	50	50	--	--	--	--
Cadmium	5.7	0.40	50	10	5	--	--	--	--
Manganese	396	91.9	50	--	--	--	--	--	--
Nickel	43.5	--	--	--	--	--	--	--	--
Zinc	59.4	26.4	50	--	--	--	--	--	--
SURFACE WATER INORGANICS									
Aluminum	8,200	1134.2	--	--	--	--	--	750	87
Arsenic	6.9	3.1	--	--	--	50	190	--	--
Cobalt	74.3	14.9	--	--	--	--	--	--	--
Manganese	264	131.4	--	--	--	--	100	--	--
Nickel	80.2	19.1	--	--	--	--	varies w/ hardness	790-2500	88-280
Zinc	99.2	27.4	--	--	--	5000	47	65-210	59-190
Cyanide	26.4	7.3	--	--	--	--	5.2	22	5.2

* ARA's = Applicable or Relevant and Appropriate Requirements
 ** ug/l = micrograms/liter = ppb

SWCB = State Water Control Board of Virginia
 SW = Surface water
 GW = Groundwater
 NA = Standard not applicable to this medium.
 -- = Data not available.

- o Sediment Pathways - The Landfill is currently covered with clean soil. Due to erosion, however, some refuse exposed to the surface was observed during the RI. Contaminants could move from the surface of the Site to unnamed streams E and N, thus entering the food chain through aquatic organism that may be ingested by humans.
- o Surface Water Pathways - Contaminants in surface water could enter into the human body system by ingestion of potentially contaminated surface water or ingestion of aquatic organisms in the surface water.

Exposure to chemicals of concern in each pathway is quantified by multiplying an exposure point concentration by certain exposure factors and averaging over a defined time period. In general, the upper 95 percent confidence limit on the arithmetic average of concentrations is used as the concentration factor in the exposure calculation. The combination of the concentration factor and the exposure factors should reflect the reasonable maximum exposure that an individual would encounter at a site.

Summaries of mean and upper 95 percent confidence limit concentrations for groundwater, surface water, and sediment are presented in Tables 2 to 4.

Toxicity Assessment - In performing the toxicity assessment, EPA examined chronic (long-term) exposures to the contamination found at the Site. Risks were classified into carcinogenic risks and non-carcinogenic risks.

EPA has developed slope factors, expressed in units of $(\text{mg/kg-day})^{-1}$, to calculate an upper-bound estimate of the excess lifetime cancer risk associated with exposure to carcinogenic chemicals. The term "upper bound" reflects the conservative estimate of the risk calculated from the slope factor. The slope factor is the upper 95th percent confidence limit of the slope of the dose-response curve and represents the probability of a response per unit intake of the chemical. Slope factors are derived from the results of human epidemiological studies or chronic animal bioassay. If the slope factor is derived from animal data, equivalent human doses are first determined. Slope factors can then be multiplied by the calculated intake of the chemical of concern to determine the cancer risk due to exposure.

In addition, EPA also evaluates the likelihood that a given substance is carcinogenic in humans. This is reflected by the "weight-of-evidence" assigned to that substance. A weight-of-evidence classification is determined by experimental or epidemiological studies involving exposure to the substance in question. Weight-of-evidence is classified by capital letters ranging in alphabetical order from "A" to "E," with "A" meaning

Table 2 - Contaminants Detected in Groundwater Samples at the Hosier Road Landfill

Contaminants	Concentration (Upper 95% Limit) (ug/l)*	Mean Concentration (ug/l)	Total Number of Samples	Number of Samples BOL **	Concentration in Upgradient Surface Sample HRS-4 (Mean)
INORGANICS - Total Metals					
Aluminum	2076	1134	18	4	423.5
Arsenic	4.4	3.1	18	14	BOL
Cobalt	22.3	14.9	18	16	BOL
Manganese	211.2	131.4	18	1	16.75
Nickel	28.4	19.1	18	15	BOL
Zinc	49.5	27.4	18	10	16.8
Cyanide	10.7	7.3	16	14	BOL

* ug/l = micrograms/liter = ppb
 ** BOL = Below Quantification Limit.

Table 3 - Contaminants Detected in Surface Water Samples at the Hosier Road Landfill

Contaminants	Concentration (Upper 95% limit) (ug/l)*	Mean Concentration (ug/l)	Total Number of Samples	Number of Samples BQL **	Concentration in Upgradient Control Well HRW-1 (mean)
INORGANICS - Dissolved Metals					
Aluminum	115.1	82.1	12	10	142.5
Arsenic	36.7	19.3	12	7	BQL
Manganese	163.7	91.9	12	0	127.9
Zinc	38.1	26.4	12	3	17.8

* ug/l = micrograms/liter = ppb

** BQL = Below Quantification Limit.

Table 4 - Contaminants Detected in Sediment Samples at the Hosier Road Landfill

Contaminants	Concentration (95% Upper Limit) (mg/kg)*	Mean Concentration (mg/kg)	Total Number of Samples	Number of Samples BQL**	Concentration in Upgradient Sediment Sample HRS-4
INORGANICS					
Aluminum	10258.0	6949.3	11	0	6410
Arsenic	5.1	2.4	11	8	BQL
Chromium	8.8	6.1	11	3	4.7
Copper	4.6	3.3	11	8	BQL
Manganese	23.2	17.9	11	0	23.6
Vanadium	19.1	12.6	11	4	17.9
Zinc	52.4	33.9	11	2	38.6

* mg/kg = milligrams/kilogram = ppm.

** BQL = Below Quantification Limit.

evidence of carcinogenicity from exposure to the substance.

For chemicals with the potential to cause adverse health effects other than cancer, EPA has developed levels that humans, including sensitive subpopulations, can be exposed to on a long-term daily basis without experiencing any adverse effects. These levels are called reference doses (RfDs), and are expressed in units of mg/kg-day. Estimated intakes of chemicals from environmental media (e.g., the amount of a chemical ingested from contaminated drinking water) can be compared to the RfD. RfDs are derived from applicable human studies if adequate data are available. If human data are not available, an animal study that demonstrates the critical toxic effect of the chemical is selected. A "no-observed-adverse-effect level" (NOAEL) is determined. The NOAEL is divided by appropriate uncertainty factors to derive the RfD. Uncertainty factors help ensure that the RfDs will not underestimate the potential for adverse noncarcinogenic effects. The ratio of the predicted daily exposure of the population to the RfD of the contaminant is called the hazard quotient. The sum of all hazard quotients of all contaminants for an exposure pathway is termed the "Pathway Hazard Index." A Pathway Hazard Index less than one (unity) indicates that non-carcinogenic risks present via that exposure pathway are improbable.

Risk Characterization - Carcinogenic risks and non-carcinogenic risks associated with major exposure pathways discussed above were estimated.

Based on the assumption that exposure to onsite groundwater occurs, an incremental carcinogenic risk of 7.5×10^{-4} was estimated (Table 5) due to the presence of arsenic, the sole carcinogenic contaminant present in the onsite groundwater. This means there would be approximately 8 additional cancer cases per 10,000 exposed individuals. The estimated carcinogenic risks from exposure to onsite groundwater is slightly above the acceptable level (1×10^{-6} to 1×10^{-4}). The Pathway Hazard Index was estimated at 1.8, primarily due to arsenic (Table 6). These estimated risks are considered conservative since the groundwater contamination was found within the boundary of the Landfill where the use of the groundwater as a potable source is highly improbable.

Although onsite groundwater in the northern section of the Site presents slightly elevated risk, the offsite risks are expected to be significantly reduced from the onsite risk levels. As the groundwater migrates offsite, the arsenic and metals in the groundwater are adsorbed by the soils in the aquifer. Most of the water in the Columbia aquifer, the shallow aquifer, discharges into unnamed stream N, where surface water/sediment sampling showed no contamination.

Table 5 - Estimation of Carcinogenic Risks Associated With Ingestion of Groundwater Contaminated With Metals (Dissolved) at the Hosier Road Landfill

Contaminants	CDI* (ug/kg/day)	CDI** Adjusted for Absorption	SF (1mg/kg/day)	Weight of Evidence	Type of Cancer	SF Source	SF Basis (Media)	Chemical Specific Risk	Total Pathway Risk
INORGANICS									
Aluminum	1.35E+00	1.35E+00	--	--	--	IRIS	--	--	--
Arsenic [†]	4.31E-01	4.31E-01	1.75E+00	A	Shn	EPA	Water	7.5E-04	--
Manganese	1.92E+00	1.92E+00	--	D	--	IRIS	--	--	--
Zinc	4.47E-01	4.47E-01	--	D	--	HEA	--	--	7.5E-04

* Upper 95% Contaminant Concentration X Human Intake Factor (assumes 70 kg adult drinks 2 liters of water daily, 350 days per year for 30 years [e.g., 0.01174 (1ug/day)]).

** Calculated daily intake adjusted for intestinal absorption efficiency here assumed to be 100 percent.

CDI = Calculated daily intake of contaminant based on upper 95% concentration limit and standard assumptions.

SF = Slope Factor

A = Human Carcinogen

D = Not classifiable as to human carcinogenicity.

IRIS = Integrated Risk Information System (January 24, 1992). National Medical Library.

EPA = EPA risk assessment personnel in comments to Draft R.I. Report

-- = Data not available.

Table 6 - Estimation of Chronic Hazards Associated With Ingestion of Groundwater Contaminated With Metals (Dissolved) at the Hosier Road Landfill

Contaminants	Daily Intake (ug/kg/day)	Daily Intake ** Adjusted for Absorption	RID (ug/kg/day)	RID Confidence Level	Critical Health Effect	RID Source	RID Uncertainty Adjustments	Modifying Factor	Hazard Quotient	Pathway Hazard Index
CHRONIC HAZARDS										
Aluminum	2.23E+00 *	2.23E+00	--	--	--	IRIS	--	--	1.76E+00	1.8E+00
Arsenic	5.29E-01 *	5.29E-01	3.00E-01	Medium	Skin effects	IRIS	3	1	2.52E-02	
Manganese †	2.52E+00 *	2.52E+00	1.00E+02 **	Medium	CNS effects	IRIS	1	1	3.44E-03	
Zinc	7.23E-01 *	7.23E-01	2.10E+02 ***	--	--	MEA	--	--		

* Mean Contaminant Concentration X Human Intake Factor (assumes 70 kg adult drinks 2 liters of water daily for 350 days per year for 30 years; (0.0274 (kg/day))).

** Calculated daily intake adjusted for intestinal absorption efficiency here assumed to be 100 percent.

*** RID is preliminary. Risk assessment for this substance is under review by EPA work group.

CNS = Central Nervous System

RID = Reference Dose

IRIS = Integrated Risk Information System (January 24, 1993). National Medical Library.

MEA = Health Effects Assessment Document, USEPA, 1986.

-- = Data not available.

Currently there are no residences in the area where groundwater contamination has been observed. There are no residential drinking water wells located directly downgradient of the Site. Most residential drinking water wells are located upgradient of the Site (south of the Site). Groundwater sampling of monitoring wells located along the southeastern edge of the Site revealed no contamination, indicating no contaminant migration in this direction from the Site.

The potential risks resulting from consumption of surface water in streams bordering the Site (Tables 7 and 8), or from consumption of aquatic organisms in these streams are well within the acceptable levels (Tables 9 to 10). Potential health risks from accidental ingestion of sediments near the Site (Tables 11 and 12) and from consumption of aquatic life sustained by sediment-based food chains are minimal (Tables 9 and 10).

VII. DESCRIPTION OF THE SELECTED RESPONSE ACTION

The no-action alternative was evaluated for the Site, as required by the NCP, to establish a baseline for comparison with other alternatives. EPA, in consultation with VDWM, selected the No-action alternative for the Site. Under the No-action alternative, no remedial action under CERCLA would be taken. Groundwater monitoring will be performed to provide continued assurance that no unacceptable risks to human health or the environment occur.

VIII. BASIS FOR THE NO-ACTION ALTERNATIVE

EPA's determination concerning the need for remedial action at a Superfund site is based upon site-specific information. As described in this ROD, the Site poses a risk to human health only in the event of consumption of contaminated groundwater existing in certain areas within the Site boundary. No consumption of this groundwater is occurring at this time and none is expected to occur in the future. Also, the surface water sampling in the nearby streams indicates that the contaminant levels are protective of aquatic life. Thus, the No-action alternative is protective of human health and the environment.

Sampling results indicating that there is no offsite migration of contaminants, the low level risk associated with the on-site contaminants, and the monitoring requirements which can identify any future need for groundwater remediation, are major factors contributing to the preference for the No-action alternative.

EPA has determined that the risks associated with this Site do not warrant remedial action under CERCLA. Since contaminants remain at the Site, EPA will conduct a review within five years after this ROD is issued to assure continued protection of human

health and the environment.

IX. DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan for the Suffolk City Landfill site was released for public comment in August 1992. The Proposed Plan identified a No Action Alternative as the preferred remedial response action at this site. EPA reviewed all written and verbal comments submitted during the public comment period. Upon review of these comments, it was determined that no significant changes to the remedy, as originally identified in the Proposed Plan, were necessary.

Table 7 - Estimation of Carcinogenic Risks Associated with Ingestion of Contaminated Surface Water Near the Hosier Road Landfill

Contaminants	CDI * ug/kg/day	CDI ** Adjusted for Absorption	SF 1/mg/kg/day	Weight of Evidence	Type of Cancer	SF Source	SF Basis (Media)	Chemical- Specific Risk	Total Pathway Risk
INORGANICS									
Aluminum	2.47E+01	2.47E+01	--	--	--	IRIS	--	--	--
Arsenic	5.24E-02	5.24E-02	1.75E+00	A	Skin	EPA	Water	9.16E-05	--
Cobalt	2.65E-01	2.65E-01	--	--	--	IRIS	--	--	--
Manganese	2.51E+00	2.51E+00	--	D	--	IRIS	--	--	--
Nickel	3.38E-01	3.38E-01	--	--	--	IRIS	--	--	--
Zinc	5.89E-01	5.89E-01	--	D	--	IRIS	--	--	--
Cyanide	1.27E-01	1.27E-01	--	D	--	IRIS	--	--	9.2E-05

* Contaminant Concentration (Upper 95% Limit) X Human Intake Factor (assumes 70 kg adult drinks 2 liters of water daily, 350 days per year for 70 years, [e.g., 0.0119 l/kg]).

** Calculated daily intake adjusted for intestinal absorption efficiency here assumed to be 100 percent.

CDI = Calculated daily intake of contaminant based on upper 95% concentration limit and standard assumptions.

SF = Slope factor

A = Human Carcinogen

D = Not classified as to human carcinogenicity.

EPA = EPA risk assessment personnel in comments to Draft R.I. Report.

IRIS = Integrated Risk Information System (January 24, 1992). National Medical Library.

-- = Data not available.

Table 8 - Estimation of Chronic Hazards Associated With Ingestion of Contaminated Surface Water Near the Hosier Road Landfill

Contaminants	Daily Intake ug/kg/day	Daily Intake ** Adjusted for Absorption	RfD (ug/kg/day)	Confidence Level	Critical Health Effect	RfD Source	RfD Uncertainty Adjustments	Modifying Factor	Hazard Quotient	Pathway Hazard Index
CHRONIC HAZARDS										
Aluminum	3.11E+01 *	3.11E+01	--	--	--	RfD	--	--	--	--
Arsenic	8.49E-02 *	8.49E-02	3.00E-01	Medium	Skin effects	RfD	3	1	2.83E-01	--
Cobalt	4.08E-01 *	4.08E-01	--	--	--	RfD	--	--	--	--
Manganese	3.60E+00 *	3.60E+00	1.00E+02	Medium	CNS effects	RfD	1	1	3.60E-02	--
Nickel	5.23E-01 *	5.23E-01	2.00E+01	Medium	Decr. body & organ wgt.	RfD	300	1	2.83E-02	--
Zinc	7.31E-01 *	7.31E-01	2.10E+02	--	--	MEA	--	--	3.50E-03	--
Cyanide	2.00E-01 *	2.00E-01	2.00E+01	Medium	Thyroid & myelin effects	RfD	100	5	1.00E-02	3.0E-01

* Mean Contaminant Concentration X Human Intake Factor (assumes 70 kg adult drinks 2 liters of water daily, 350 days per year for 30 years (e.g., 0.0274 ug/kg/day)).

** Calculated daily intake adjusted for intestinal absorption efficiency here assumed to be 100 percent.

RfD = Reference Dose
 CNS = Central Nervous System
 RfD = Integrated Risk Information System (January 24, 1992). National Medical Library.
 MEA = Health Effects Assessment Document, USEPA, 1986.

Table 9 - Estimation of Carcinogenic Risks Associated With Ingestion of Contaminated Fish
Near the Hosier Road Landfill

Contaminant	CDI *	CDI ** Adjusted for Absorption	Fish Biocon-		Human Intake *** Factor (kg fish/kg/day)	SF 1/mg/kg/day	Weight of Evidence	Type of Cancer	SF Source	SF Basis (Media)	Chemical- Specific Risk	Total Pathway Risk
			centration Factor (/kg fish)	centration Factor (/kg fish)								
INORGANICS												
Aluminum	1.87E+00	1.87E+00	10	10	9.00E-05	--	--	--	IRIS	--	--	7.3E-07
Arsenic	1.74E-02	1.74E-02	44	44	9.00E-05	--	A	Skin	EPA	--	1.21E-07	
Cobalt	0.00E+00	0.00E+00	--	--	9.00E-05	--	--	--	IRIS	--	--	
Manganese	0.00E+00	0.00E+00	--	--	9.00E-05	--	D	--	IRIS	--	--	
Nickel	1.20E-01	1.20E-01	47	47	9.00E-05	--	--	--	IRIS	--	--	
Zinc	2.09E-01	2.09E-01	47	47	9.00E-05	--	D	--	IRIS	--	--	
Cyanide	0.00E+00	0.00E+00	--	--	9.00E-05	--	D	--	IRIS	--	--	

* Contaminant Concentration in Surface Water (Upper 95% Limit X Bioconcentration Factor X Human Intake Factor.
 ** Calculated daily intake adjusted for intestinal absorption efficiency here assumed to be 100 percent.
 *** Human Intake Factor (kg fish/kg/day) = 0.0085 (kg fish/day) X 1/70 (kg/adult).
 CDI = Calculated daily intake of contaminant based on upper 95% concentration limit and standard assumptions.
 SF = Slope factor
 A = Human Carcinogen
 D = Not Classifiable as to human carcinogenicity.
 IRIS = Integrated Risk Information System (January 24, 1982, National Medical Library.
 EPA = EPA risk assessment personnel in comments to Draft RI Report.

Table 10 - Estimation of Chronic Hazards Associated with Ingestion of Contaminated Fish
Near the Hosier Road Landfill

Contaminants	Daily Intake ug/kg/day	Daily Intake ** Adjusted for Absorption	POD (ug/kg/day)	Confidence Level	Critical Health Effect	POD Source	POD Uncertainty Adjustments	Modifying Factor	Hazard Quotient	Fish Biocon- centration Factor (ug fish)	Human Intake Factor *** (ug fish/kg/day)
CHRONIC HAZARDS											
Aluminum	1.02E+00 *	1.02E+00	--	--	--	RIS	--	1	--	10	9.00E-05
Arsenic	1.23E-02 *	1.23E-02	--	Medium	Skin effects	RIS	3	1	--	44	9.00E-05
Cobalt	1.34E-03 *	1.34E-03	--	--	--	RIS	--	1	--	--	9.00E-05
Manganese	1.16E-02 *	1.16E-02	2.32E+02	Medium	CNS effects	RIS	1	1	5.32E-05	--	9.00E-05
Nickel	8.08E-02 *	8.08E-02	1.00E+01	Medium	Dec. body & organ wgt.	RIS	300	1	8.08E-03	47	9.00E-05
Zinc	1.16E-01 *	1.16E-01	2.10E+02	--	--	MEA	--	--	5.52E-04	47	9.00E-05
Cyanide	6.57E-04 *	6.57E-04	2.00E+01	Medium	Thyroid & myelin effects	RIS	100	5	3.22E-05	--	9.00E-05

* Mean Contaminant Concentration X Fish Bioconcentration Factor X Human Intake Factor.

** Calculated daily intake adjusted for intestinal absorption efficiency have assumed to be 100 percent.

*** Human Intake Factor (ug fish/kg/day) = 0.0083 (ug fish/day) X 1/70 (ug/kg/day).

POD = Reference Dose

CNS = Central Nervous System

RIS = Integrated Risk Information System (January 24, 1992, National Medical Library).

Table 11 - Estimation of Carcinogenic Risks Associated with Ingestion of Contaminated Sediments Near the Hosier Road Landfill

	Calculated Daily Intake from Ingestion of Sediment	Calculated Carcinogenic Risk from Ingestion of Sediment		
Contaminants	Average Daily Lifetime Intake * (mg/kg/day)	Potency Factor (mg/kg/day) -1	Lifetime* Carcinogenic Risk	Weight of Evidence - Chronic Risk
INORGANICS - Total Metals				
Aluminum	1.61E-02	--	--	--
Arsenic	8.01E-06	1.75E+00 **	1.40E-05	A
Chromium	1.38E-05	--	--	--
Copper	7.22E-06	--	--	--
Manganese	3.64E-05	--	--	--
Vanadium	3.00E-05	--	--	--
Zinc	8.23E-05	--	--	--

* Assume 15 kg child eats 200 mg sediment per day, 350 days per year for 6 years, then, as a 70 kg adult, eats 100 mg sediment per day, 350 days per year for 24 years.

** Potency Factor provided by EPA risk assessment personnel in comments to Draft R.I. Report.

A = Human Carcinogen

AR301432

Table 12 - Estimation of Non-Carcinogenic Risks Associated with Ingestion of Contaminated Sediments Near the Hosier Road Landfill

Contaminants	Calculated Daily Intake from Ingestion of Soil (mg/kg/day)				Allowable Daily Intakes for Adults and Children		Hazard Index	
	Adults* Upper 95% Limit	Mean	Children** Upper 95% Limit	Mean	Subchronic (mg/kg/day)	Chronic	Subchronic (mg/kg/day)	Children** Chronic
INORGANICS - Total Metals								
Aluminum	1.41E-02	9.52E-03	1.31E-01	6.90E-02	--	--	--	--
Arsenic	6.99E-06	3.29E-06	6.53E-05	3.07E-05	--	1.10E-06	--	1.02E-04
Chromium	1.21E-05	8.36E-06	1.13E-04	7.81E-05	--	8.36E-06	--	7.81E-05
Copper	6.30E-06	4.52E-06	5.89E-05	4.22E-05	3.70E-02	1.00E+00	1.59E-03	1.14E-03
Manganese	3.18E-05	2.45E-05	2.97E-04	2.29E-04	--	1.00E-01	--	2.29E-03
Vanadium	2.62E-05	1.73E-05	2.44E-04	1.61E-04	--	2.00E+02	--	8.06E-07
Zinc	7.18E-05	4.64E-05	6.71E-04	4.34E-04	2.10E-01	2.10E-01	3.19E-03	2.07E-03

* Assume 70 kg adult eats 100 mg sediment per day, 350 days per year for 24 years.
 ** Assume 15 kg child eats 200 mg sediment per day, 350 days per year for 6 years.

IRIS = Integrated Risk Information System (January 24, 1992). National Medical Library.
 HEA = Health Effects Assessment Document, USEPA, 1986.

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PART III
RESPONSIVENESS SUMMARY

I. OVERVIEW

A public meeting was held in Suffolk, Virginia on September 3, 1992 to discuss the Proposed Plan for the Suffolk City Landfill Superfund Site. At this meeting, representatives from VDWM and EPA explained the results of the RI and the basis for the proposed response action. Questions addressed at the public meeting on September 3rd primarily pertained to the risk assessment process. Approximately 25 people attended the meeting, with the majority of attendees being local, state, or federal officials.

The public comment period began on August 23, 1992 and concluded on September 22, 1992.

The following sections comprise this Responsiveness Summary:

- * Background of Community Involvement;
- * Summary of Comments Received During Public Comment Period and Responses;
- * Summary.

II. BACKGROUND OF COMMUNITY INVOLVEMENT

1. History of Community Involvement

As required by the Community Relations Plan, community interviews were conducted in 1991. Concerns expressed by those interviewed are summarized in Section II (2) of this Responsiveness Summary. According to City officials, community interest in the Suffolk City Landfill has been limited. A review of City Landfill records revealed no letters from concerned citizens or groups regarding the Landfill, and present City staff likewise cannot recall any specific inquiries on the Site.

After the Landfill ceased operation in January 1985, the City Council has been provided periodic briefings as to the status of the closeout and subsequent investigations during Council meetings. The City staff feel that they have made a conscientious effort to keep the public and the media informed on major developments at the Site. Despite media coverage of the major events surrounding the Landfill, interest in the Site has been limited thus far to residents in the immediate vicinity, local officials, and the press.

Several residents interviewed had experienced problems with their well water associated with coliform bacteria buildup. A representative of the State Water Control Board who was interviewed indicated that the cause of the coliform buildup is not known.

Two community workshops were held prior to the RI/FS start, one on January 29, 1991, and one on March 17, 1991. The first workshop was held at City Hall, and was attended by two members of the local press and three local residents. The primary concern at this workshop was the expected cost of the investigation and cleanup. The March 17, 1991 workshop was scheduled at the request of several interested Hosier Road area residents who were unable to attend the January workshop. Approximately 40 residents attended the March meeting, including the Hosier Civic League president, Ms. Vivian Saunders, and local Councilman Milteer. The Hosier Lane Civic League submitted a Technical Assistance Grant (TAG) letter of intent to EPA after learning more about TAGs at a meeting conducted by VDWM on May 16, 1991. Ms. Vivian Saunders was designated as the community contact person for TAG and Site activities. At this time, the residents have not submitted an application for a TAG. An additional workshop was held by VDWM on April 9, 1992 to discuss the investigation findings and update citizens on the status of the RI. The Proposed Plan meeting was held on September 3, 1992. Approximately 15 residents attended, as well as public officials. According to a City official, residents are satisfied with receiving regular Site information by mail, and therefore did not feel it was necessary to attend.

2. Key Community Concerns

This section discusses areas of concern that were raised by residents, agencies, and other groups during the community interviews conducted by the VDWM.

♦ Groundwater Contamination.

Many parties interviewed expressed concern about the potential for pollution of area groundwater caused by leachate or pesticides migrating from the Landfill. Residents within a three mile radius of the Landfill rely primarily on private wells for their drinking water, and thus were concerned about how the Landfill might be affecting them and their families. One resident related problems with high coliform bacteria levels in her well water, and wondered whether the Landfill might be causing it. Coliform bacteria is a major issue of concern for residents. Public safety and health is a predominant issue over cost for residents living closest to the Site. VDWM staff directed residents to their local health department, the state health office in Richmond, and the Virginia Tech Water Resource Research Center (VTWRRRC) for more information on the coliform bacteria and groundwater. VDWM also sent copies of the VTWRRRC brochures to the Hosier Lane Civic League President Saunders.

♦ Surface Water Contamination.

Several interviewees representing environmental groups expressed concern about the effect of releases from the Landfill on the waters, wildlife, and fauna of the Pocosin and Great Dismal Swamp. A spokesperson for the U.S. Fish and Wildlife Service commented on a fish kill in 1986 in the Dismal Swamp that is still being investigated.

♦ Property Values.

Several residents interviewed in the area of the Landfill were concerned about the effect the Landfill would have on their property values. One interviewee related a rumor apparently circulating in the community that the City purchased a house next to the Landfill because the soil and water were polluted and the owner was unable to sell the property. Another resident requested to be notified as soon as there was any indication that a hazardous problem exists at the Site, so that he can attempt to sell his house before word gets around that the area is unhealthy.

♦ Scope and results of the RI/FS.

A number of parties were concerned about not knowing whether there was a hazardous threat and, if so, what the extent was.

Residents were generally glad that a study was being conducted and hoped that it would reveal whether or not pesticides or other hazardous substances were escaping from the Site. Several parties, including the City of Suffolk, were concerned about the potential cost of the study and hoped that the remedial activities at the Site would not get out of hand. Also, several persons were concerned about what would be done if a hazardous release or other problems were found. Several residents suggested that the City should extend municipal water lines to all residents in the area due to coliform bacteria problems. Others felt that the government should do whatever was reasonably necessary to clean up the Landfill if it was determined that further remedial action was required.

It should be emphasized that the public participation program is intended to provide citizens with information to respond to concerns such as those noted above and to advise them of opportunities for expression of these concerns for consideration in the final selection of a response action for the Site.

III. SUMMARY OF PUBLIC COMMENTS AND AGENCY RESPONSE

This section summarizes questions and comments raised by the public or interested parties during the September 3, 1992 public meeting and during the comment period, and the responses by VDWM/EPA.

♦ Question/Comment: How often will groundwater monitoring occur (Vivian Saunders) and where will the wells be placed? (Mr. James)

♦ Response: Normally, groundwater monitoring is done quarterly. However, if no problems are detected, it may be reduced to semi-annually. The monitoring well locations have not been determined. Most likely, monitoring wells will be located upgradient of the Site to establish the background conditions, and downgradient of the Site to determine any differences from the upgradient condition.

♦ Question/Comment: How deep are the monitoring wells?

♦ Response: Monitoring well depths may range from 20 to 30 feet. The monitoring wells would detect anything released into the shallow aquifer.

♦ Question/Comment: Are there any deep water wells? (Ms. Hauser)

♦ Response: There are no deep groundwater wells at the Site. The deeper aquifers at the Site are separated from the uppermost aquifer by confining layers of silt and clay that essentially restrict the vertical movement of contaminants. Monitoring wells placed in the shallow aquifer only detected slightly elevated

levels of arsenic and chromium in the northern area of the Landfill. Metals tend to remain adsorbed to the soil in the subsurface environment and are relatively immobile in soil and groundwater. Therefore, VDWM and EPA determined that placement of monitoring wells in the deeper aquifers was not necessary.

♦ Question/Comment: Is it possible that the two metals detected went through the clay when it was penetrated with the piezometers? (Ms. Hauser)

♦ Response: The piezometers at the Site were constructed using accepted technology that is designed to prevent the transfer of contamination.

♦ Question/Comment: Describe the leachate collection system (Ms. Norton and Mr. James)

♦ Response: The City placed leachate interceptor lines draining into four 4,000-gallon collection tanks around the Landfill. The leachate is collected periodically and transported to the Hampton Roads Sanitation Treatment District wastewater treatment plant.

♦ Question/Comment: Would surface water monitoring detect any future leachate problem that groundwater monitoring may miss? (Lloyd Culp)

♦ Response: Additional surface water monitoring is not presently planned for the Site. The Site is covered with two feet of clean soil that prevents possible contamination from being transferred through surface runoff. Groundwater at the Site discharges directly into Streams N & E. By monitoring groundwater, possible contamination will be identified prior to discharge to surface waters. If groundwater contamination is detected at levels that present an unacceptable risk to human health or the environment, additional surface water monitoring would be performed. If the soil cover on the Landfill is sufficiently disturbed by future activity to allow for the possible contamination of surface water runoff, surface and sediment monitoring will also be considered.

♦ Question/Comment: What is the status of the Dixie Guano Company as a Potentially Responsible Party? (Brenda Norton)

♦ Response: EPA notified Dixie Guano Company of their potential liability at the Site in a General Notice Letter dated February 22, 1989.

♦ Question/Comment: Clarification of the monitoring and closure plan.

♦ Response: EPA is requiring groundwater monitoring in this ROD to provide continued assurance that the Site does not pose unacceptable risks to human health and the environment. To the

extent practicable, this monitoring will be coordinated with State monitoring requirements that will be imposed since the Site is a solid waste landfill, which will need to comply with Virginia regulations on closure of such landfills. The normal closing process has been delayed due to the Superfund activities. The closure plan under State regulations and the Superfund's groundwater monitoring requirements are two processes independent of each other.

♦ Question/Comment: Is the waste on Site contaminated?

♦ Response: When a landfill site is investigated, samples of the buried waste are not routinely taken. Media which may be potentially impacted are sampled to determine if there have been any hazardous releases from the waste. Most of the wastes at the Site are known to be municipal and household wastes. Groundwater on Site was tested and was found to have slight contamination. However, an individual would only be exposed to an unacceptable health risk if the person drank on-site well water every day for 30 years. It is not expected that any consumption of on-site groundwater will occur in the foreseeable future.

♦ Question/Comment: What about redeveloping the land? (Ms. Saunders)

♦ Response: If anyone wanted to buy the land, they would have to ensure that redevelopment activities were consistent with State landfill closure requirements.

♦ Question/Comment: Is the groundwater migration flowing towards residential homes? (Ms. Saunders)

♦ Response: No. The direction of groundwater migration is north and northeast. The residents are located south of the Site.

♦ Question/Comment: How fast is groundwater moving? (Mr. Culp)

♦ Response: Groundwater is moving at a rate of approximately 0.7 feet per day.

♦ Question/Comment: How deep are the pesticides buried below the ground? (Mr. Culp)

♦ Response: Two trenches were dug, each approximately three feet deep, 120 feet long, and 20 feet wide. Two feet of topsoil was placed above the trenches. Therefore, the pesticides are buried approximately two feet below the ground.

♦ Question/Comment: Was the statement that pesticides were significantly degraded by photolysis, alkaline hydrolysis, etc. ever verified by taking a soil sample below the cap of the Landfill, or was it an assumption? (Ms. Norton)

♦ Response: Prior to the Remedial Investigation, EPA contractors sampled the pesticide disposal pit, and no pesticides were detected. In addition, a groundwater monitoring well was located immediately downgradient of the disposal pit and no pesticides were detected.

♦ Question/Comment: If no pesticides were detected in the pit before the Site became a Superfund Site, how did it make the score on the National Priorities List? Wouldn't it have been a lower score? (Ms. Norton)

♦ Response: The score for the NPL is based on the potential threat or release into the environment. The indicators for risk were based on conservative assumptions, not necessarily from actual data; the most conservative possibilities were reviewed.

At the time the disposal pit was sampled and no contamination was found, EPA and VDWM considered the possibility that contamination could have migrated from that particular area. This was taken into account in the Hazardous Ranking Score which determined that the Landfill was eligible to become a Superfund Site.

♦ Question/Comment: The attorney representing the Dixie Guano Company (referred to as the "Company") stated in a letter dated September 22, 1992:

1. A total of approximately 20 tons of debris was removed from the Company and taken to the Landfill following the May 9, 1970 fire, some of which consisted of damaged agricultural chemical products. The Proposed Plan implied that the 27 tons of pesticides damaged in the fire were disposed of in the Landfill.
2. The pesticides placed in the Landfill probably readily decomposed and photolysis would have resulted in rapid decomposition of pesticides exposed to sunlight. The Company mentioned that a substantial portion of the damaged products placed in the Landfill were exposed to both air and sunlight following the fire, during loading of debris and during transport of debris to the Landfill.
3. The letter states, "The Company is pleased that the remedial investigation has revealed that the debris it sent to the Landfill after the fire has not affected the environment in any way and presents no risk to either the environment or to public health. The Company generally agreed with the EPA's and Department's apparent conclusion that the damaged products the Company took to the Landfill have decomposed to the point that they present no significant future threat to the environment or to public health. Finally, the Company agreed with the conclusion of EPA and the Department that the

Landfill does not require further attention as a Superfund matter, that it should be removed from the National Priorities List, and that its proper closure should be regulated under Virginia Solid Waste Management Regulations."

♦ Response:

1. VDWM and EPA believe that the quantity of pesticides disposed at the Site as stated in the Proposed Plan was accurate. This amount (approximately 27 tons) was specified in a letter dated August 23, 1988 from the City to EPA.
2. No response is necessary. The scenario stated in this comment was a possibility.
3. It should be noted that the Proposed Plan indicates a slightly elevated risk from long-term exposure to onsite groundwater, and points out that the pesticides have likely degraded significantly. VDWM and EPA agree that the Proposed Plan would not in any way prevent the Site from being closed under VSWMR, and that deletion of the Site from the NPL would be the next step in the Superfund process.

♦ Question/Comment: The City of Suffolk, in its written comments dated September 22, 1992, made the following points:

1. The City is relieved that the results of the RI and Supplemental RI indicate that the Site does not pose a significant threat to humans or the environment. The City believes that the RI has sufficiently characterized the nature and extent of the contamination at the Site. The City recommends that no further sampling for Site characterization purposes be conducted.
2. The City concurs with the proposed response action and understands that under the No-Action alternative, groundwater monitoring will be conducted to detect unexpected future migration of contaminants. The City also recommends that the groundwater monitoring be conducted in conjunction with the post-closure care of the landfill.
3. The City recommends that the ROD identify ARARs that pertain to closure of the Landfill.

♦ Response:

1. VDWM and EPA agree with the recommendation.
2. No response is necessary. VDWM and EPA will make efforts to avoid duplication in conducting groundwater sampling.
3. A ROD only identifies ARARs that are associated with the

selected response action. Since no Superfund response action is required at this Site, it is not appropriate to identify any ARARs that need to be met. Closure of the Landfill under State solid waste regulations will be addressed independently by VDWM.

♦ Question/Comment: The US Fish and Wildlife Services in its letter dated September 17, 1992, recommends that "surface waters and sediments of the drainage corridors downstream" of the Landfill be comprehensively sampled for environmental contaminants.

♦ Response: During the RI and Supplemental RI, surface water and sediment sampling activities were conducted. The results of these sampling activities indicated the absence of contamination. Since the streams near the Site receive discharge from groundwater, monitoring of groundwater will detect any releases of contaminants from the Site into the environmental media, including the nearby surface waters and sediments. Therefore, VDWM and EPA believe that the available information does not warrant inclusion of surface water sampling in the monitoring scheme. If contamination is detected in groundwater at levels that could present an unacceptable threat to the aquatic environment, surface water and sediment sampling would be required.

IV. SUMMARY

Copies of this Responsiveness Summary will be placed in the Information Repository located in the Morgan Memorial Library, 443 West Washington Street, Suffolk, Virginia.

VDWM will continue to provide Quarterly Community Updates to members of the mailing list at least through deletion of the Site from the NPL. VDWM community relations staff will continue to be responsive to requests for additional community relations activities.

APPENDIX A

Letters Received During Comment Period

AR301444



CITY OF SUFFOLK

P. O. BOX 1858, SUFFOLK, VIRGINIA 23434, PHONE 934-3111

CITY MANAGER

September 22, 1992

Ms. Melissa Klein
Superfund Community Relations
Virginia Department of Waste
Management
101 North 14th Street, 18th Floor
Richmond, Virginia 23219

Dear Ms. Klein:

This is in response to the request by the Virginia Department of Waste Management (VDWM) and the U.S. Environmental Protection Agency (EPA) for comments on the Proposed Plan for the Suffolk City (Hosier Road) Landfill Superfund Site.

The City of Suffolk has been an active participant throughout the Superfund remedial process at the site, including conduct of the Remedial Investigation/Feasibility Study (RI/FS) at the landfill under an Administrative Order on Consent with VDWM. During the operation of the Hosier Road Landfill and after operations ceased in 1985, the City's primary objective has been to take those actions necessary to ensure the health and safety of residents and the environment without squandering the City's limited resources.

While preparing for closure of the landfill in 1985, the City discovered records in its files pertaining to disposal of fire-damaged pesticides at the landfill. EPA thereafter investigated and proposed the site for listing on the National Priorities List (NPL). Based on available data, the City has consistently maintained that the pesticides of concern probably decomposed shortly after their disposal in 1970 and that permanent capping and closure of the landfill would be adequately protective of humans and the environment. However, in the interest of making absolutely sure that the landfill poses no significant health or environmental risks, the City has been committed to working cooperatively with VDWM and EPA to evaluate the site.

The City is relieved that the results of the Remedial Investigation (RI), Supplemental RI and risk assessment completed at the site indicate that the landfill does not pose a significant threat to humans or the environment. We believe that the extensive groundwater, surface water,

AR301445

sediment and bioreceptor sampling conducted during the RI has been sufficient to fully characterize the nature and extent of contamination at the site.

Because no contamination was detected at significant levels within the landfill or leaving the landfill during the Remedial Investigation, it does not appear that the site poses a threat to residential wells or the environment. The City recommends that no further sampling for site characterization purposes be conducted. The Suffolk Health Department is responsible for regulation of residential wells in Suffolk and is available to test residents' well water as requested on an individual basis.

Based on the aforementioned factors, the City concurs with EPA's conclusion in the Proposed Plan that no Superfund remedial action under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) is required to address conditions at the site. Furthermore, the City recommends that the No-Action alternative be the appropriate alternative identified in the Record of Decision for the site. The City understands that under the No-Action alternative, periodic groundwater monitoring will be conducted as a safeguard to detect unexpected future migration of contaminants. The City recommends that this groundwater monitoring be conducted in conjunction with the post-closure care of the landfill.

With regard to post-closure care of the site, the City recommends that the Record of Decision identify the following regulatory guidelines under which the landfill could be closed:

1. Virginia Senate Bill 473, related to capping requirements for sanitary landfills, approved during the 1992 General Assembly Session, which instructs VDWM to revise its regulations (VR-672-20-10) consistent with EPA regulations under Subtitle D of RCRA, relating to closure of solid waste landfills.
2. The final version of the pending proposed revisions to the Virginia Solid Waste Management Regulations (VR-672-20-10) (proposal dated June 11, 1992).

In conclusion, the City of Suffolk believes that the results of the Remedial Investigation, Supplemental Remedial Investigation and risk assessment at the Hosier Road Landfill, support the No Action alternative at the site. We also believe that the site and surrounding area have been fully characterized and that no further sampling is necessary. The City believes it to be in the best interests of its citizens and the environment to proceed with final closure of the landfill under those regulations deemed mutually acceptable by the City, EPA and VDWM to be adequately

AR301446

protective of humans and the environment as well as economically feasible.

The City appreciates the opportunity to offer comments on the Proposed Plan prepared by VDWM and EPA for the Suffolk City Landfill.

Sincerely,



Richard L. Hedrick
City Manager

RLH:mhw

cc: The Honorable Council

AR301447

HUNTON & WILLIAMS -

ATLANTA, GEORGIA
BRUSSELS, BELGIUM
FAIRFAX, VIRGINIA
KNOXVILLE, TENNESSEE
NEW YORK, NEW YORK

RIVERFRONT PLAZA, EAST TOWER
951 EAST BYRD STREET
RICHMOND, VIRGINIA 23219-4074
TELEPHONE (804) 788-8200
FACSIMILE (804) 788-8218

NORFOLK, VIRGINIA
RALEIGH, NORTH CAROLINA
VIRGINIA BEACH, VIRGINIA
WASHINGTON, D. C.

FILE No.: 42812.000002
DIRECT DIAL: (804) 788-8364

DAVID O. LEDBETTER

September 22, 1992

By Hand

Ms. Melissa Klein
Superfund Community Relations Specialist
Department of Waste Management
James Monroe Building, Eleventh Floor
101 North Fourteenth Street
Richmond, Virginia 23219

Re: Comments of Dixie Guano Company, Inc. on Proposed Plan for Suffolk
City Landfill Superfund Site

Dear Ms. Klein:

Thank you for sending to me a copy of the Proposed Plan. On behalf of my client, Dixie Guano Company, Inc. (the "Company"), I submit the following comments on the Proposed Plan for the consideration of the Department and the United States Environmental Protection Agency (the "EPA") that they be included in the administrative record for this matter.

Type of Fire Debris at the Landfill

Page 3 of the Proposed Plan discusses the disposal at the Landfill of debris and other wastes caused by a May 9, 1970 fire at the Company. The account of events during that period in the Proposed Plan appears to be based on a "memorandum to file" written by Mr. P.M. Stewart of the City of Suffolk on June 3, 1970. The source of information contained in Mr. Stewart's memorandum is unclear, and its discussion of the nature and amount of fire debris and related agricultural chemical products is misleading or inaccurate. The memorandum says the fire at Dixie Guano "partially destroyed approximately 27 tons of . . . products" and strongly implies that they all may have gone to the Landfill. In fact, Company employees and officers who were eyewitnesses confirm that a very substantial portion the inventory that suffered label and/or package damage such that it could not be sold was given to customers of Dixie Guano.

AR301448

HUNTON & WILLIAMS

Ms. Melissa Klein
September 22, 1992
Page 3

EPA's and Department's apparent conclusion that the damaged products the Company took to the Landfill in 1970 have decomposed to the point that they present no significant future threat to the environment or public health. Finally, the Company agrees with the conclusion of the EPA and the Department that the Landfill does not require further attention as a Superfund matter, that it should be removed from the National Priorities List, and that its proper closure should be regulated under the Virginia Solid Waste Management Regulations.

Respectfully submitted,



David O. Ledbetter

cc: Mr. Carl E. Eason

AR301449

HUNTON & WILLIAMS -

Ms. Melissa Klein
September 22, 1992
Page 2

Furthermore, in the June 3, 1970 memorandum and in his later memorandum of June 9, 1970, Mr. Stewart did not reveal, as apparently was the case, that the waste tonnage estimates upon which his memoranda were based included both fire debris and damaged products, not just damaged products. The fire caused extensive damage to a sizeable warehouse, which consisted of wood flooring, wood framing, corrugated metal walls and roofing and other structural components. According to eyewitnesses who include the driver of the truck, a substantial part of materials taken to the Landfill both before and after Mr. Stewart's June 3, 1970 memorandum consisted of structural debris. Although subsequent EPA documents, including a draft preliminary assessment report dated November 28, 1984 and a draft Site Inspection Report dated March 26, 1986, repeat Mr. Stewart's erroneous conclusions, apparently taking them as accurate, an August 2, 1988 "Preliminary Assessment of Dixie Guano" by the Virginia Department of Waste Management acknowledges, at least as to the debris disposed of in the landfill after June 3, 1970, that it "included warehouse debris (metal and burnt wood, excluding the concrete foundation)."

The Company sought to clarify some of these factual questions in their attached and incorporated October 28, 1987 response to an information request from the EPA. In that letter, Dixie explained why it could not possibly have disposed of 27 tons of fire-damaged Di-Syston, and included a corroborating price list and profit and loss statement.

In light of the above, the Proposed Plan should be corrected to reflect that a total of approximately 20 tons of debris was removed from the Company and taken to the Landfill following the May 9, 1970 fire, some of which consisted of damaged agricultural chemical products; but the Proposed Plan should not speculate as to an actual volume or tonnage of damaged products placed in the Landfill.

Likely Decomposition of Damaged Products

In the second paragraph on Page 4, the Proposed Plan correctly notes that many pesticides placed in the Landfill probably readily decomposed and notes that photolysis would have resulted in rapid decomposition of pesticides exposed to sunlight. The Company suggests that the Proposed Plan should mention, at that point, that a substantial portion of the damaged products placed in the Landfill were exposed to both air and sunlight following the fire, during loading of debris and during transport of debris to the Landfill.

General Comments

The Company is pleased that the remedial investigation has revealed that the debris it sent to the Landfill after the fire has not affected the environment in any way and presents no risk to either the environment or to public health. The Company generally agrees with the

AR301450

PRETLOW, EASON & PRETLOW

A PROFESSIONAL CORPORATION

ATTORNEYS AND COUNSELLORS AT LAW

COLONIAL BUILDING

POST OFFICE BOX 1234

SUFFOLK, VIRGINIA 23434

JOSHUA PRETLOW, JR.
CARL EDWARD EASON, JR.
T. KIRK PRETLOW

JOSHUA PRETLOW (1919-1974)

TELEPHONES

FILE NO.

AREA CODE 804

SUFFOLK: 534-2218

NORFOLK: 397-2900

October 28, 1987

Ms. Barbara Brown, (JHW16)
U.S. Environmental Protection Agency, Region III
DELMARVA WV/DC CERCLA Remedial Enforcement Section
341 Chestnut Building
Philadelphia, Pennsylvania 19107

RE: Suffolk City Landfill
Dixie Guano Company, Inc.

Dear Ms. Brown:

This is to confirm my telephone conversation with you of October 28, 1987 wherein I advised you that I represent Dixie Guano Company, Inc. regarding the above-referenced matter. My clients received on October 20, 1987 a letter from Bruce P. Smith, Chief, Hazardous Waste Management Branch dated October 15, 1987. I am providing the following information to you on behalf of my clients in response to that letter.

The following responses and enclosures are numbered to correspond to the specific numbered requests in the referenced letter of Mr. Smith. However, before I get to the specific responses, I wish to confirm what I told you on the telephone in our conversation of October 28, 1987 regarding the availability of information.

Thomas G. Hines, Director of Public Works for the City of Suffolk, owners of the Suffolk City Landfill, has provided me with copies of numerous documents which I understand he made available to your offices several months ago in response to a similar letter which he received. Most of that documentation was not in the possession of Dixie prior to Mr. Hines providing us that information last week. It was my understanding that you do not desire for me to provide duplicates of those reports, memorandums and letters which we have recently received from Mr. Hines. Additionally, since your office is inquiring as to events which took place in the spring of 1970, Dixie very simply does not have any available records relating to that time period. Immediately upon receipt of your office's letter, we contacted the insurance carrier for Dixie, which provided coverage and reimbursement due to a fire which Dixie incurred in the summer 1970, and which is the genesis for the dumping of the particular substances into the Suffolk City Landfill which your office is now

AR301451

October 28, 1987

investigating. Our local insurance agent has informed me that he will be requested all records from the national headquarters of the insurance carrier, but that that matter could take several weeks, if in fact the records still exist.

My clients are attempting to locate the suppliers of the substances which you are investigating to determine what quantities may have been purchased by Dixie during the time period in question. Similarly, we do not have that information yet, and frankly, we are not sure exactly who the suppliers were in that time period. We will attempt to contact all potential suppliers and see from whom these substances may have been purchased.

The following are the specific responses:

1. Documents presently in the possession of Dixie do not provide us with enough information to tell you what types or quantities of substances were in the warehouse which was destroyed by the fire in the spring of 1970, and therefore Dixie is unable to give you specific names of substances which were dumped into the landfill. However, enclosed please find a spring price list-1970, of chemicals which were sold by Dixie during that time period. Dixie feels that a certain office memorandum dated June 3, 1970 from Mr. P. M. Stewart with the Suffolk Health Department (a copy of which I enclose herewith) probably lists the types of chemicals which were disposed into the Suffolk Landfill, they being Disyston, copper sevin sulfur, sevin sulfur, Thimet and Sinox. However, Dixie believes that the memo's reference to the quantities of the substances dumped is totally erroneous and out of line with what was placed in the landfill. Dixie would at no time have had 27 tons of the above-named products, "mostly Disyston", of which they needed to dispose from the fire. That is why we are attempting to gather records from other sources which will reflect the quantity of these products in the possession of Dixie at the time of the fire. As can be seen by the enclosed price list, Disyston, 10% granular sold at 28 cents per price, that would mean that if 27 tons of disyston had been dumped, it would have been at an inventory cost to Dixie of approximately \$15,920.00. I enclose herewith a profit and loss statement dated May 31, 1970 of Dixie which shows that current inventory was \$29,726.81. That current inventory included all chemicals, fertilizer, machinery and equipment sold by Dixie. Disyston was one extremely small portion of the products which Dixie sold in 1970. Clearly, over 50% of it's inventory would not have been reflected in one chemical. You can see the number of chemicals which Dixie sold simply by looking at the price list. Dixie also sold various blends of fertilizer, as well as equipment for application of these products, such as those made by Gandy. Additionally, the chemical Disyston is used during the planting

AR301452

season, which in our area would have been in late March to early May. Therefore, the chemical Disyton would have been, to a very great degree, completely from stock at Dixie by the time of the fire in May of 1970. In addition to the chemicals dumped in the Suffolk Landfill, all of the debris from the destroyed warehouse, such as wood, paper products, scrap metal, etc. were dumped into the landfill, quantities of which are unknown by Dixie.

2. These substances were evidently dumped into the landfill on or about June 1, 1970 and June 5, 1970.

3. The substances were in a solid state to a very great degree when dumped into the Suffolk Landfill, and after an initial dumping of a few substances uncontained, the vast majority of the substances were placed in the trenches as is further outlined in the June 3, 1970 memorandum enclosed earlier herewith.

4. Dixie does not have in its possession any correspondence between it and regulatory agencies regarding these substances.

5. Dixie does not have in its possession any correspondence between it and third parties regarding these substances.

6. The identity of the persons who transported the substances to the landfill were employees of Dixie in 1970, however, the individuals are not known at the present time. The identity of those who arranged for the storage and disposal of the substances are unknown to Dixie, however, the above-mentioned interoffice memo of June 3, 1970 mentions the names of the individuals from the various state agencies who made the decisions as to how the substances would be disposed at the Suffolk City Landfill.

7. Dixie does not have in its possession any deeds, rights-of-way, leases or other real interests in the Suffolk City Landfill.

Dixie does not presently have a copy of its 1970 liability insurance policy. We have contacted the local agent through which that policy was secured in 1970, and have been informed that it was a general liability policy, and the local agent is contacting the local carrier and seeing if copies of that policy can be made available to us so that we can provide them to you. As soon as we have those in our possession, we will forward them to you.

Likewise, any additional information which we are able to secure from third parties we will provide to you as soon as possible. We wish to emphasize that we feel the concern which EPA has concerning the Suffolk Landfill may be overstated by the erroneous quantities

AR301453

October 28, 1987

reported to have been dumped into the landfill by Dixie. It is my understanding that almost all test results conducted by both EPA and the City of Suffolk's independent engineers show low levels of potential contaminants or pollutants in the Suffolk City Landfill. We trust that with the information which we have provided to you by this letter, along with the information which the City of Suffolk provided to you, a satisfactory resolution to this matter can be achieved promptly. We stand prepared to provide you with any further information or assistance to which we have access and which may be of value to your investigation. Please feel free to contact me should you have any further questions.

Yours truly,

Carl W. Eason, Jr.

CEE,jr/lrg

Enclosures

CC: Mr. James Parker
Vice President
Dixie Guano Company, Inc.

Mr. Thomas G. Hines
Director of Public Works
City of Suffolk

AR301454

DIXIE GUANO COMPANY, INC.

SPRING PRICE LIST ** 1970

CHEMICALS

		DEALER	CONSUMER
Diazinon	50# bags	.36½ #	.40 #
Disyston 15% Granular	10# bags	.40½ #	.45½ #
Disyston 10% Granular	10# bags	.28 #	.32 #
Sevin 80% W.P.	10# bags	.79 #	.89 #
Sevin 5 Dust	50# bags	7.75 cwt	9.00 cwt
Thimet 10% Granular	10# bags	.27 #	.32 #

HERBICIDES

Atrazine 80W	5# bags	2.25 #	2.50 #
Ramrod 20G	50# bags	.44 #	.49½ #
Ramrod 65 w.P.	10# bags	1.18 #	1.36 #
Ramrod-Atrazine 75% Ramrod-25% Atrazine	10# bags	1.42 #	1.60 #
Balan	5 gal can	8.50 gal	10.00 gal
	1 gal jug	8.93 gal	10.50 gal
Dinitro-3#/gal (Sinex P.E.)	30 gal drum	3.36 gal	3.86 gal
	5 gal can	3.52 gal	4.12 gal
Sinox G-100	50# bags	21.00 cwt	24.60 cwt
Enide-Dinitro E.C.	5 gal can	8.62 gal	10.15 gal
	1 gal can	8.92 gal	10.50 gal
Enide 50-W	4# bags	2.11 #	2.48 #
Lasso	5 gal can	12.00 gal	13.50 gal
Lasso 10% Granular	50# bags	47.50 cwt	53.00 cwt
Sodium Arsenite	5 gal can	1.50 gal	2.00 gal
Sutan 6-E	5 gal can	8.95 gal	10.15 gal

AR301455

Sutan 10G	50# bags	22.00 cwt	25.00 cwt
Vernam 10G	50# bags	24.65 cwt	28.00 cwt
Vernam 6-E	1 gal can	15.90 gal	18.05 gal
2,4,-D Amine - 4#	5 gal can	2.80 gal	3.30 gal
	1 gal can	2.90 gal	3.40 gal
2,4,-D Low Vol Ester-4#	5 gal	6.60 gal	8.25 gal
	1 gal	6.85 gal	8.50 gal
2,4,5-T Brush Killer	1 gal can	11.00 gal	13.20 gal

SOIL FUMIGANTS

Nemagon 12.1 G	30 gal drum	9.50 gal	11.50 gal
	5 gal can	9.65 gal	11.65 gal
Soilfume 85	30 gal drum	3.70 gal	4.55 gal
	5 gal can	3.85 gal	4.70 gal

Promatrol 8.80 gal 18.50 bag

Fluridan 13.95 for 30# bag or (1.46 lb)

Tander WP. 6.00 #

Thiodan Mix. 7.75 gal

Tander 4G 50# bag per bag 22.50

AR301456

Dr.

2.0632793

Operating expenses

Adm.

209952

Contributions

52500

Customer relations

147664

Director's fee & exp.

17086

Draws & disburse

24071

Interest paid

164725

Legal & acct. fees

211112

Licenses & taxes

517189

Misc. exp.

28894

R.C. tonnage fees

28031

Office exp.

123875

Power

41711

Rentals exp. - Storage

16000

Repairs & maint.

127853

Salaries - Office

1179577

Salesmen

1399896

Salesman exp. - E.C.C.

31645

J.N.P.

12568

C.C.E.

46260

S.C.E.

20345

Telephone

70706

Travel & bags

193454

Uniform rentals

44528

Via tonnage fees

141508

42,825.33
163,501.85

5550.74

48,376.33

1,5795.11

AR301457

Profit and Loss Statement
May 31, 1930

<i>Artillery Account</i>			
Sales of Artillery etc	5,300.65 H		150,168.03
Less: Artillery House	11,247.35 D		19,611.06
			136,557.03
<i>Expenditures of materials</i>		150,400.90	
Purchases - Chemicals		178,739.87	
Artillery mds		195,088.92	
Handy Equip		62,315.41	
Small Equip		52,111.81	
Freight In		16,529.65	
		608,545.56	
Less: Inventory - Current	39,089.77	297,246.21	57,818.21
			257,738.2
<i>Plant expenses</i>			
Auto expense & repairs		76,471.18	
Factory labor		31,199.92	
Factory supplies		65,593.30	
Fuel		24,745	
Grass Inc.		2,117.88	
Ins.		4,246.00	51,410.8
			206,327.7
<i>Operating expenses</i>		2,475.21	
Adv.		2,475.21	
Contributions		62,380	
Customer Relations		14,706.4	
Director fees & exp.		17,056	
Chairman & Sub		24,891	
Interest Paid		16,472.5	
Legal & Rec. fees		2,111.12	
License & Taxes		51,718.9	
Travel exp.		2,889.4	
R. C. Sundry fees		2,882.1	
Office exp.		12,387.9	
Power		4,471.1	
Rentals exp. - Storage		18,000	
Repairs & maint.		1,378.03	
Salaries - office		11,795.77	62,423
Salesmen		13,998.96	16,380.1
Salesman exp. - S.C.D.		316.43	
S.N.P.		1,356.5	
C.C.B.		46,260	
C.C.B.		2,032.5	
C.C.B.		767.00	
Telephone		1,935.54	
Uniforms		4,451.8	
Van Sundry fees		14,508.1	

104

104

FROM PESTLOW, MAPPE & EASON

AR30-1458



United States Department of the Interior

FISH AND WILDLIFE SERVICE
DIVISION OF ECOLOGICAL SERVICES
1825 VIRGINIA STREET
ANNAPOLIS, MARYLAND 21401

September 17, 1992

Ms. Melissa Klein
Superfund Public Relations
Virginia Department of Waste Management
101 N. 14th Street
Richmond, VA 23219

Re: Suffolk City Landfill
(Hosier Road Landfill)

Dear Ms. Klein:

We have recently reviewed the Proposed Plan for the implementation of the no action alternative for the Suffolk City Landfill Superfund Site. In addition, Mr. Lloyd Culp, Refuge Manager for the Great Dismal Swamp National Wildlife Refuge, attended the public meeting held on September 3, 1992 in order to receive more information on the proposed plan. The U.S. Fish and Wildlife Service (Service) offers the following comments.

Although the Service agrees that the majority of contaminant problems will be resolved by capping the landfill and the leachate collection system, the Service still has concerns regarding the impact of contaminants on the Service's trust resources that exist near the landfill. One Federally listed threatened species, the Dismal Swamp southeastern shrew (Sorex longirostris fisheri), several Federal candidate species, and State listed species inhabit the Great Dismal Swamp, which abuts the landfill area. In addition, the Great Dismal Swamp National Wildlife Refuge provides a unique environment for many migratory species.

The major concern in regard to the proposed plan is that only groundwater monitoring is provided for by the no action alternative. In a U.S. Fish and Wildlife Service study conducted in 1989 to determine the degree of contamination in the Great Dismal Swamp National Wildlife Refuge, Pocasin Swamp surface water samples displayed elevated metals (copper, iron, and chromium) concentrations. Low benthic species diversity was also noted at the confluence of unnamed streams N and E indicating possible ecological impacts adjacent to the landfill. Since the surface water and groundwater flow patterns indicate that waters from this area flow in the direction of Pocasin Swamp and eventually Lake Drummond, the entire Refuge could be potentially affected by these contaminants. The groundwater of the contaminated upper aquifer is known to surface and fill the ditches of the swamp periodically, indicating another potential pathway of contamination to the Refuge.

AR301459

The Service recommends that surface waters and sediments of the drainage corridors downstream of the landfill be comprehensively sampled for environmental contaminants. This would provide a baseline measure. Groundwater monitoring wells should be set up to include sampling sites that would not only assess the threat to human health but also assess the ecological impacts to the Refuge. If groundwater samples indicate an increase of contaminants approaching refuge resources, additional surface water and sediment sampling would be warranted.

In the future, the Department of the Interior will be asked to make a determination on the potential for damage caused by the contamination at the Suffolk City Landfill to natural resources under its protection. Prior to making such a decision, it will be necessary for us to have a better understanding of the extent of contamination in unnamed streams N and E. We strongly recommend that this information be obtained by the Department of Waste Management or the Environmental Protection Agency.

If you require further information please contact Nancy Morse of this office at (804) 693-6694.

Sincerely,

Karen L. Mayne

Karen L. Mayne
Acting Supervisor
Chesapeake Bay Field Office

AR301460

APPENDIX B
Glossary of Superfund Terms

AR301461

GLOSSARY

Administrative Record: An official compilation of documents, data, reports, and other information that is considered important to the status of and decisions made relative to a Superfund site. The public has access to this material.

Aquifer: A zone below the surface of the earth capable of producing water, as from a well.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), or Superfund: A federal law passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act. The Act created a trust fund, known as Superfund, to investigate and clean up abandoned or uncontrolled hazardous waste sites.

Half-life: Time required to reduce to one-half of the initial concentration of a compound.

Hydrolysis: Chemical break-down by reaction with water.

National Contingency Plan (NCP): The federal regulation that guides the Superfund program.

National Priorities List (NPL): EPA's list of the nation's top priority hazardous waste sites that are eligible to receive federal money for response under Superfund.

Photolysis: Chemical break-down by light or other radiant energy.

Record of Decision (ROD): A legal document that describes the final remedial actions selected for a Superfund site, why the remedial actions were chosen and others not, how much they cost, and how the public responded.

Remedial Investigation/Feasibility Study (RI/FS): A two-part study of a hazardous waste site that supports the selection of a remedial action for a site. The first part, the RI, identifies the nature and extent of contamination at the site. The second part, the FS, identifies and evaluates alternatives for addressing the contamination.

APPENDIX C

Index of Documents Contained In the Administrative File